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Mapping landscape service provision of cropland in the urban fringe - the case of Wuhan, China

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People benefit from cropland through food production and a variety of environmental and recreational benefits. However, the provision of the different functions offered by agricultural landscape deteriorates as a consequence of ongoing urban development, especially in urban fringe. To help define sustainable management strategies we developed and implemented a method to map characteristic patterns of current provision of these landscape services.

Field interviews were conducted in Wuhan, a rapidly urbanising Chinese city, to study the degree to which different functions are present in its urban fringe. The questionnaire was designed following the evaluative dimensions of agricultural land-use systems proposed by Gómez Sal and González García (2007) with necessary adjustment into local conditions and scale. In total, 25 land functions are distinguished, namely, productive, ecological, economic, social and cultural dimensions of its agricultural land-use systems. Based on the result of 768 farmer households, four typical patterns of land function provision were categorized using a k-means clustering approach.

The results show that: (1) social and productive functions dominate the typical agricultural land-use patterns that were distinguished; (2) the values of cultural functions remain low in all locations, suggesting the potential of promoting the cultural assets of the area; and (3) the synergy between provision and regulation functions performs differently at different locations while only 17% of the total sample shows relatively high-level synergy.

The presentation will demonstrate the typical provision patterns of ecosystem services of cropland in the urban fringe of Wuhan and discuss its potential implications for land planners and managers.